

Certificate of Conformity

Ex EQUIPMENT

Certificate No.:	ANZEx 18.4161X	Current Issue:	0	Date of Issue:	2018-08-14
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Applicant: **Ecom Instruments GmbH**
Industriestraße 2
Assamstadt 97959
Germany


Equipment: Smartphone Smart-Ex01M

Type of Explosion Protection: Intrinsic safety

Explosion Protection Marking: Ex ia I Ma IP64 (0°C ≤ Ta ≤ +50°C)

*This certificate is granted subject to the conditions as set out in
Standards Australia/Standards New Zealand Miscellaneous Publication **MP87.1***

Signed for and on behalf of issuing body



Name & Position

David Price

Certification Authority - Ex Testing & Certification

This certificate is not transferable and remains the property of the issuing body.

The status of this certificate can be confirmed through the database located at www.anzex.com.au

Certificate issued by:

Ex Testing & Certification Pty Ltd
1/30 Kennington Drive, Tomago NSW 2322 Australia

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Manufacturer : **Ecom Instruments GmbH**
Industriestraße 2
Assamstadt 97959
Germany

**Additional
Manufacturing
Location(s):** None

STANDARDS:

The equipment and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

IEC 60079-0:2011 Ed 6 Explosive atmospheres Part 0: Equipment—General requirements

IEC 60079-11:2011 Ed 6 Explosive atmospheres Part 11: Equipment protection by intrinsic safety "i"

This Certificate does not indicate compliance with safety and performance requirements other than those expressly included in the Standards listed above.

TEST & ASSESSMENT REPORTS:

The equipment listed has successfully met the examination and test requirements as recorded in:

Test Report No. & Issuing Body: DE/EPS/ExTR16.0045/01 – issued by Bureau Veritas, Germany
REP18072-01 issued by Ex Testing and Certification, Australia

Quality Assessment Report No. DE/PTB/QAR07.0004/04
& Issuing Body:

File Reference: 18072

(Certificate format based on template QMA-HAE-08-720 dated 2017-11-13)

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Schedule

Equipment Description:

The intrinsically safe smartphone type Smart-Ex 01M is a GSM quad-band communication device intended for use in mines susceptible to firedamp. It provides additional features such as cameras, GPS, acceleration sensor, Bluetooth, vibration motor, headphone connector and flashlight. Different integrated antennas can be used for the usual cellular systems including LTE. The permissible ambient temperature range is 0 °C to +50 °C. The device is equipped with a non-exchangeable integrated Li-Ion battery unit.

Charging is done via the “magnetic” USB-connector with the “Safety Box SB 01 ANZEx”. The “magnetic” USB connector is device specific and polarity reversal protected. The device may only be charged outside the hazardous area. The wired data transfer is possible via the USB-connector in non-hazardous areas only.

There are two versions of the smartphone that are covered in this certificate: the A-version for the frequency bands applicable in US and Australia, and the E-version for Europe. The safety critical components in both versions are identical.

Electrical Ratings/Parameters

Internal battery

Specific Conditions of Use:

1. The battery pack is only allowed to be charged outside of the explosive hazardous area via the “Safety Box SB S01 ANZEx”.
2. Before entering the hazardous location the Ecom leather case type LC S01M shall be fitted to the Smart-Ex01M.
3. The device has to be protected against impacts with high impact energy.
4. The device shall be protected from the exposure of oils, greases and hydraulic fluids.
5. The following parameters shall be taken into account when connecting accessories to the audio jack:

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Uo	4.2V – peak 3.8V - continuous
Io	111mA + Ii
Po	117mW+Pi
Ci	1uF
Li	1uH
Ui	4.2V
Ii	47mA
Pi	200mW

The following Lo and Co combinations may be used:

Lo (mH)	2.3	2.0	1.0	0.5	0.2	0.1	0.049	0.019	0.009	0.004	0.001	0.000
Co (uF)	1.4	1.7	4.0	4.3	6.3	8.2	11.0	16.0	24.0	39.0	129.0	419.0

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History of Issues and Variations

Issue 0 dated 2018-08-14

Manufacturer's Documents associated with Issue 0:

Drawing No.:	Pages:	Title:	Rev. Level:	Date:
Safety Circuit Board				
500055SP01A	3	SCB Circuit Diagram	03G	2014-08-21
500055SL01A	5	SCB Parts List	04G	2014-08-27
500055BA01A	1	SCB Mounting (Top)	02G	2014-08-21
500055BB01A	1	SCB Mounting (Bottom)	02G	2014-08-21
500055YA01A	1	SCB Layout (Top)	03G	2014-11-04
500055YB01A	1	SCB Layout (Bottom)	02G	2014-08-21
500055YC01A	1	SCB Layout (Layer2)	02G	2014-08-21
500055YD01A	1	SCB Layout (Layer3)	02G	2014-08-21
Mainboard				
500055BD03A PCB_MBD-S01- E_schematic	28	Schematic, Main, Sonim, DVT3.1 (E-version)	02G	2014-10-14
500055BC03A PCB_MBD-S01- A_schematic	28	Schematic, Main, Sonim, DVT3.1 (A-version)	02G	2014-10-14
500055SL03A	27	PCB_MBD-BOM	03G	2018-07-31
500055YB03A PCB_MBD-S01 Layout	12	SIMCOM (various titles) PCB_MBD-S01_layout	01G	2014-10-15
Various other boards				
500055BA04A FPC-C1_SKC-H09	6	Schematic, FPC C1, Sonim V3.01 (Con&Side Keys) (various titles – includes schematics, bill of materials, layouts)	01G	2014-07-10
500055BB05A	6	Schematic, FPC C2, Sonim V1.00 (Front Camera and Face Sensor) (various titles – includes schematics, bill of materials, layouts)	01G	2014-08-05
500055BB06A	6	Schematic, FPC C3, Sonim V1.00 (Speaker and RGB LED) (various titles – includes schematics, bill of materials,	02G	2014-10-13

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Drawing No.:	Pages:	Title:	Rev. Level:	Date:
		layouts)		
500055BA07A FPC-C4_HDS	5	Schematic, FPC C4, Sonim V2.00 (Headset Socket) (various titles – includes schematics, bill of materials, layouts)	00G	2014-06-24
500055BB08A	6	Schematic, FPC C5, Sonim V3.01 (Power Key) (various titles – includes schematics, bill of materials, layouts)	02G	2014-10-13
500055BB09A	6	Schematic, FPC C6, Sonim V3.00 (Keypad) (various titles – includes schematics, bill of materials, layouts)	01G	2014-08-05
500055BB10A	6	Schematic, FPC C7, Sonim V2.00 (Torch, Sub-microphone, SIM card) (various titles – includes schematics, bill of materials, layouts)	01G	2014-08-05
500055BB11A FPC_LCM-BLC-S01	5	Outline-D4M91 LCD-FPC_PIN (FPC_LCM-BLC-S01) (Display & Backlight) (various titles – includes bill of materials, layouts)	01G	2014-08-26
500055BB12A	2	Capacitive Touch-CTP-S01 (various titles – bill of materials, layouts)	00G	2014-08-13
500055BA13A Camera-Autofocus_RCC-AFC	8	I_7700_8M_AF (various titles – includes schematics, bill of materials, layouts)	00G	2014-08-13
Safety Box Board				
01-A186	1	SB S01 ANZEx Schematic	-	2013-12-18
02-A2G1	1	Parts list SB S01 ANZEx	-	2018-07-30
500055BA02A	1	SBB Mounting (Top)	06G	2014-07-01
500055BB02A	1	SBB Test points (Bottom)	06G	2014-07-01
500055YA02A	1	SBB Layout (Top)	06G	2014-07-01
500055YB02A	1	SBB Layout (Bottom)	06G	2014-07-01
500055YC02A	1	SBB Layout (Layer 2)	06G	2014-07-01
500055YD02A	1	SBB Layout (Layer 3)	06G	2014-07-01
Assembly drawings				
500055AZ01A	1	Exploded view Battery Pack	02G	2014-07-29
500055AZ04A	1	Exploded view Smart-Ex 01	00G	2014-08-08

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Drawing No.:	Pages:	Title:	Rev. Level:	Date:
500069DB01A	3	Leather Case LC S01M	00G	2016-06-20
500055FZ16A	1	Graphit_foil_S01	00G	2014-10-06
10-CHU6	1	Device label for Smart-Ex 01M ANZEx	-	2018-03-27
10-CHW1	1	Label for Safety Box SB 01 ANZEx	-	2018-08-02

Instructions:

Drawing No.:	Pages:	Title:	Rev. Level:	Date:
Safety Instructions				
500069EX02A	3	Safety Instructions Smart-Ex 01M	00G	2016-06-17
500055EX05A	1	Audio Jack Parameter	03G	2017-07-25